USSR UDC: 621.394.662.2(088.8)

KISLYUK, L. D.

"A Device for Phasing by Cycles"

USSR Author's Certificate No 275106, filed 23 Dec 68, published 6 Oct 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D92 P)

Translation: A device is proposed for phasing by cycles with error correction for a recurrent phase trigger signal. The device contains a storage circuit for received symbols, a phase trigger signal oscillator with shift register, a mod-two adder for received and generated symbols connected to an error detector, and a high-frequency controlling pulse packet shaper. In order to reduce the storage volume of the module for storing received symbols to a value determined by the permissible probability of false phasing while simultaneously reducing the frequency of the high-frequency controlling pulses without impairing the resistance of phasing to interference, the parallel outputs of the shift register for the phase trigger signal oscillator are connected through a selector for the end of the first part of the phase trigger signal to the blocking input of the high-frequency controlling pulse packet shaper, and the low-frequency controlling pulse input of the device is connected to the read synchronization input and the reset input of the phase trigger signal oscillator through a commutator coupled by the control circuit to the paraphase output of the error detector.
1/1

USSR UDC: 621.396.62:621.391.8:621.372.54:538.563(088.8)

KISLYUK, L. D.

"A Device for Reception of Discrete Information"

USSR Author's Certificate No 265965, filed 29 May 68, published 1 Jul 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D30 P)

Translation: A device is proposed for reception of discrete information. The device contains a phase trigger correlator, error analyzer, corrector, information accumulator, reliability signal accumulator, selection module and commutator. To reduce the number of unreceived signals, the first error output of the corrector is connected through the reliability signal indicator to the addition input of the selection module, the second error output of the corrector is connected to the subtraction input of the selection module, the first output of the control module is connected to the commutation inputs of the first and second error analyzers, the second output of the control unit is connected to the read inputs of the first and second error analyzers, and the blocking outputs of the first and second error analyzers are connected through read switches to the inputs for addition and subtraction in the selection module.

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USSR

UDC: 621.394.662.2

KISLYUK, L. D.

"A Device for Phasing by Cycles"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 22, 1970, Soviet Patent No 275106, Class 21, filed 23 Dec 68, p 27

Abstract: This Author's Certificate introduces a device for phasing by cycles with error correction by a recurrent phase trigger signal. The device contains a unit for storing received symbols, a phase trigger signal generator with shift register, a mod-two adder for received and generated symbols connected to an error detector, and a high-frequency control pulse train shaper. As a distinguishing feature of the patent, the memory volume of the unit for storing received symbols is reduced to a value determined by the permissible probability of false phasing while simultaneously reducing the frequency of the high-frequency control pulses without impairing the resistance of phasing to interference. The parallel outputs of the shift register in the phase trigger signal generator are connected to the blocking input of the high-frequency control pulse train shaper through a selector which determines the end of the first part of the phase trigger signal. The low-frequency control pulse input of the device is connected through a commutator to the readout synchronization input and to the reset input of the phase trigger signal generator. The commutator is connected to the control circuit and the paraphase output of the error detector.

1/1

USSR UDC 58.036

BREZHNEV, D. D., Academician, KISLYUK, M. M. (deceased), VONOB'YEVA, G. A., All Union Scientific Research Institute of Horticulture imeni N. I. Vavilov

"The Effect of Super Low Temperature (-195°C) on the Pollen of Various Plants"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenin, No 5, 1970, pp 2-6

Abstract: Experiments were conducted with pollen of various ages carefully gathered from tomatoes, potatoes, cucumbers, onions, beets, sorrel, peas, cabbage, radishes and birches, and subjected to cryogenic temperatures (-195°C) with liquid nitrogen, for periods from one minute to a month. It was found that all specimens of pollen were more viable than controls. The fertilization rate was higher than in controls, the setting of fruit was good, the fruit was of good quality and seeds were better. In addition, cross pollination was effective. Old, inactive or dead pollen was stimulated by instantaneous freezing at cryogenic temperatures; it became active, and fertilized plants with resulting high-quality fruit. The stimulating effect of the temperature of liquid nitrogen (-195°C) was evident to a remarkable degree in all the specimens of pollen under investigation.

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USSR UDC 5414183

KISLYUK, M. U., SHUB, B. R., Institute of Chemical Physics of the USSR Academy of Sciences

"Adsorption Equilibrium on Discrete-Inhomogeneous Surfaces"

Moscow, Izvestiya Akademii Nauk SSSR- Seriya Khimicheskaya, No 11, 1972, pp 2414-2418

Abstract: A study was made of various types of adsorption equilibrium on surfaces comprising a limited number of types of adsorption centers under the assumption of satisfaction of the Langmuir adsorption isotherm equation for each of these types. A method is proposed which permits use of the experimental adsorption isotherm to determine the number of types of centers, their relative number and the corresponding adsorption coefficients. The applicability of the method is demonstrated in the example of adsorption of hydrogen on platinum. The experimental isotherms are best described if the existence of two types of centers on the surface is assumed where the chemosorption on one of them is dissociative. The isotherms of this type are described by the equation

$$\theta = \frac{\alpha_1 \sqrt{a_1 p}}{1 + \sqrt{a_1 p}} + \frac{\alpha_2 a_2 p}{1 + a_2 p}$$

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USSR

KISLYUK, M. U., and SHUB, B. R., Izvestiya Akademii Nauk SSSR- Seriya Khimicheskaya, No 11, 1972, pp 2414-2418

where θ is the dimensionless concentration on the entire surface, a_1 is the adsorption coefficient of the i-th center, and α_1 is the proportion of the centers with the number i from all the centers and it signifies the discrete distribution function.

USSR

K

UDC 621.372.82(02)

KISLYUK, M. Zh.

"The Secondary Wave Method in Problems of Electrodynamics"

Metod vtorichnykh voln v zadachakh elektrodinamiki. Leningr. elektrotekhn. in-t svyazi (cf. English above. Leningrad Electrical Engineering Institute of Communications), Leningrad, 1970, 150 pp, ill. 1 r. (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10B111 K)

Translation: A secondary wave method is outlined by means of which many boundary value problems of electrodynamics are described by Fredholm integral equations of the second kind. This method is used to examine electromagnetic fields in plane anisotropic layers and in waveguides partially filled with matter on a segment of finite length. Consideration is also given to electromagnetic fields in resonators partially filled with matter. The resultant solutions identically satisfy both the boundary conditions at interfaces and Maxwell's equations.

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USSR

UDC 546.17'27'28:539.4

SAMSONOV, G. V., KAZAKOV, V. K., GORODETSKIY, S. S., and KISLYY, P. S., Institute of Problems of Material Sciences, Academy of Sciences UkrSSR

"Mechanical Properties of Nitride-Oxide Materials in the System Al_2O_3-Si_3N_4"

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 74, pp 60-63

Abstract: The dependence of mechanical properties of materials in the system Al_2O_3-Si_3N_4 on composition, sintering temperature and test temperature was studied. The nitride-oxide materials were produced by pressing with subsequent sintering in a medium of nitrogen. Silicon dioxide, apparently present in the form of a fine film on the surface of the silicon nitride particles plays a significant role in sintering and, interacting with the aluminum oxide, forms mullite, which activates the sintering process. The addition of titanium dioxide to the aluminum oxide also activates sintering. The strength characteristics of substances in the system were studied at 20 and 1000° C. The strength of the materials decreases with increasing Al_2O_3 content. The optimal sintering temperatures are determined for the production of materials with maximum strength.

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USSR

UDC 621.762.5:669.29:669.018.4:620.18

KISLYY, P. S., SHVAB, S. A., GAYEVSKAYA, L. A., NESCHETNYY, V. A., and BUTUZOV, S. S., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Structure and Properties of Titanium Diboride With 20% Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No 9, Sep 73, pp 35-38

Abstract: Samples of titanium diboride powder with 20% titanium carbide (particle size of initial powder = 1 micron) with a porosity of almost 32% were sintered in a graphite resistance furnace in hydrogen at 2000-2300°C for 0 to 180 minutes. After a specified soaking time at a given temperature the samples were cooled, and grain size, bend strength, porosity and electric resistance were determined. It was found that grain size increases with sintering time (the higher the temperature the larger the grain size). Bend strength increases with sintering time up to a point (around 40 minutes) and then starts declining. The highest bend strength value is achieved for a sintering temperature of 2300°C but after the 40-minute mark it diminishes more quickly than a sample sintered at 2200°C. Porosity curves were the opposite of the bend strength curves with porosity dropping during the first 40 minutes and then increasing. Electrical resistance curves followed the same pattern

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KISLYY, P. S., et al., Poroshkovaya Metallurgiya, No 9, Sep 73, pp 35-38

as the porosity curves although samples sintered at 2300°C reach a low value after 40 minutes of sintering and this value remains constant for the subsequent sintering time. The conclusion was reached that titanium diboride samples with 20% titanium carbide possess the best qualities after sintering at 2200-2250°C for 40 minutes. 6 figures, 1 table, 3 bibliographic references.

2/2

USSR

UDC 669.046.558.28

KISLYY, P. S., GOLUBYAK, L. S., and ZAVERUKHA, O. V., Institute of Problems of the Material Science, Academy of Sciences Ukrainian SSR

"Changes in the Structure and Properties of Melted Titanium Carbide on Annealing"

Kiev, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 78-82

Abstract: Melted titanium carbide features stable electrophysical properties which makes its use preferable to sintered carbide. However, these properties cannot be reproduced over its volume due to rapid solidification of the melt, impurity liquation, and carbon redistribution in the crystallization zone. The objective of this paper was to study changes in both the properties and microstructure of melted titanium carbide on heating for producing a material with both stable and reproducible properties. A dependence is described of the electrophysical properties of titanium carbide on the hold-

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KISLYY, P. S., et al, Poroshkovaya Metallurgiya, No. 10, Oct 70, pp 78-82

ing period at various temperatures. The annealing was performed at 1000, 1400, 1600, 2000, and 2000°C. Under the effect of thermal stresses, and rapid cooling following high-temperature heating, titanium carbide exhibits plastic flow which is manifested in the appearance of slip bands with the release of excess carbon on them. With an increase in annealing time, the number of these bands decreases while their size increases. Annealing at 1400--1600°C brings about the formation of large equilibrium grains of titanium carbide and the release of excess carbon along their boundaries. Annealing at 2000--2200°C produces a microstructure with large equilibrium grains. The stabilization of thermoelectric characteristics takes place after 4 hours of annealing at 1600--2200°C.

2/2

USSR

UDC 621.762.5.001

KISLYY, P. S., and GOLUBYAK, L. S., Institute of Problems of Material Science, Academy of Sciences Ukr SSR

"Sintering Titanium Carbide With Isothermal Heating"

Kiev, Poroshkovaya Metallurgiya, No 1 (97), Jan 71, pp 23-26

Abstract: A study was made of the shrinkage of titanium carbide samples under conditions of isothermal heating during the effect of ultrasound (the oscillation amplitude A = 12 microns, the pulse length τ = 40 microseconds, and the generation frequency f = 9,000 sec^{-1}).

During the initial period of isothermal holding the shrinkage of titanium carbide samples in an ultrasonic field is more intense than that of samples not subjected to ultrasound. With an increase in the holding time, the shrinkage of the samples sintered in the ultrasonic field decreases. The grain size of the sample sintered in the ultrasonic field is smaller, i.e., the ultrasound inhibits the process of collective recrystallization of titanium carbide. Ultrasound also causes loosening of the grain boundaries of titanium carbide.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201330006-4"

USSR

KISLYY, P. S., and GOLUBYAK, L. S., Poroshkovaya Metallurgiya, No 1 (97), Jan 71, pp 23-26

It is possible that the laws of shrinkage of plastic materials in an ultrasonic field differ significantly from the laws of shrinkage of titanium carbide. However, that activation of sintering cannot be explained by a change in mobility of the atoms under the effect of sonic vibrations. The mechanism of effect of the ultrasonic field is discussed in some detail, and it is concluded that probably as a result of ultrasound the boundaries of brittle materials cannot be sources for vacant sites inasmuch as with a sign-variable load in the contact sections a flow of vacant sites is established whose direction depends on the sign of the load. This leads to the occurrence of oscillatory motion of the vacant sites at the boundary and to disintegration of the lattice.

USSR

UDC 661.55:621.762.5

KUZENKOVA, M. A., and KISLYY, P. S., Institute of Problems of Material Science, Academy of Sciences, Ukrainian SSR

"Sintering of Titanium Nitride in a Vacuum"

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 71, pp 52-56

Abstract: Studies were performed with a powder of titanium nitride $TiN_{0.93}$ with a total content of impurities of 0.4% and average particle diameters of 0.5 and 10-20 μ. Specimens were prepared with porosities of 52-55% (coarse powder) and 38-40% (fine powder), dried, then vacuum sintered at various temperatures. The process of sintering of titanium nitride in a vacuum is significantly activated in its initial period. The increase in the rate of deformation during this period results from activation of processes on the particle surfaces, i. e., activated slipping of particles toward the centers of pores under the influence of surface tension forces. The period of stable

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KUZENKOVA, M. A., and KISLYY, P. S., Poroshkovaya Metallurgiya, No 2, Feb 71, pp 52-56

creep is insignificantly activated. Activation of the process results from formation of excess vacancies upon heating in a vacuum. The kinetics can be described by a diffusion creep equation under the influence of the difference between surface and boundary energies. The titanium nitride grain growth rate during the initial period of sintering is so high that pores are trapped in grains. This indicates that grain growth occurs not due to boundary movement, but rather due to reorientation of neighboring grains with formation of sub-boundaries between them. The titanium nitride grain growth rate during the stable creep period follows the regularity of collective recrystallization.

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USSR

UDC 621.762.52:669.018.25

KISLYY, P. S., GOLUBYAK, L. S., and ZAVERUKHA, O. V., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Consumable-Electrode Laboratory Furnace and Obtaining Melted Specimens of Titanium Carbide"

Kiev, Poroshkovaya Metallurgiya, No. 9, Sep 70, pp 94-98

Abstract: This paper concerns methods of obtaining cast ingots of titanium carbide in an especially designed consumable-electrode electric arc furnace. The furnace uses two electrodes, one of which is the graphite crucible and the other -- the consumable rod. Two methods of melting are proposed and described in detail. The heat losses in the furnace are low and the operating voltage in melting the titanium carbide is 30 v. An increase in the latter to 40-45 v in the melting chamber produces a space discharge; this disperses the thermal energy of the discharge over the larger area of the electrode and the process of melting is terminated. A decrease to 25 v retards the melting. The composition of the melted specimens is close to stoichiometric. During melting, titanium carbide is decomposed, liberating the free oxygen which dissolves in the carbide on subsequent high-temperature annealing. The furnace described makes it possible to produce almost nonporous parts.

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1/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--USING NIOBIUM CARBIDE AS HEATERS FOR ELECTRIC RESISTANCE FURNACES -U-

AUTHOR-(05)-SAMSONOV, G.V., KINDYSHEVA, V.S., KISLYY, P.S., MALTSEVA, L.F., MARKER, E.N.

COUNTRY OF INFO--USSR

SOURCE--KIEV, TEKHNOLOGIYA I ORGANIZATSIYA PROIZVODSTVA, NO 1, 1970, PP 85-86

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS

TOPIC TAGS--NIOBIUM CARBIDE, BIBLIOGRAPHY, ELECTRIC RESISTANCE, ELECTRIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1340 STEP NO--UR/0418/70/000/001/0085/0086

CIRC ACCESSION NO--AP0123298

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123296

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONDITIONS ARE DESCRIBED FOR PRODUCING HEATERS MADE FROM NIOBIUM CARBIDE DESIGNATED FOR OPERATION IN HIGH TEMPERATURE ELECTRIC RESISTANCE FURNACES, IN A PROTECTIVE ATMOSPHERE OR IN A VACUUM. PARTICULARS OF THE HEATERS PRODUCED ARE DESCRIBED. THE HEATERS ARE OF HIGHER DENSITY. IT IS SHOWN THAT NIOBIUM CARBIDE HEATERS CAN OPERATE CONTINUOUSLY WITHOUT SIGNIFICANT CHANGES IN THEIR CHEMICAL COMPOSITION OR STRUCTURE AT 2500-2600DEGREESC AND IN A 1 TIMES 10 PRIME NEGATIVE3 MINUS 1 TIMES 10 PRIME NEGATIVE4 MM HG FOR 300 HOURS.

UNCLASSIFIED

USSR

UDC 621.762.35:621.365

KISLYY, P. S., and ZAVARUKHA, O. V., Institute for Problems of Material Science, Academy of Sciences Ukr SSR

"Regularities of Titanium Diboride Sintering in Vacuum"

Kiev, Poroshkovaya Metallurgiya, No 7, Jul 70, pp 32-35

Abstract: Titanium diboride holds considerable promise as a refractory material. However, the information on producing high-quality parts from titanium diboride is far from adequate. This paper concerns the regularities of the sintering process of titanium diboride in vacuum at 0.0001 mm Hg. The experiment involved finely disperse powder which comprised: 68.1% Ti, 31.0% B, 0.3% C, and 0.7% Fe. The specimens were sintered in a furnace permitting measurements of electrical resistance up to the sintering temperature, which, in addition to data on shrinkage, provided a comprehensive characteristic of kinetic processes of sintering. The results obtained suggest that the increase in the contact area between titanium diboride particles within the low-temperature region (up to 1200° C) is due to surface diffusion processes. At temperatures above 1300° C the mechanism of vaporization and condensation makes a considerable contribution to mass transfer.

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KUZENKOVA, M. A., and KISLYY, P. S., Institute of the Problems of Material Science, Academy of Sciences Ukrainian SSR

"Sintering of Titanium Nitride in Nitrogen"

Kiev, Poroshkovaya Metallurgiya, No 5, May 70, pp 34-38

Abstract: Studies were conducted of the kinetic parameters and mechanism of titanium nitride shrinkage in nitrogen. For the investigations, titanium nitride with the following chemical composition, close to stoichiometric, was used: Ti -- 78%, N -- 21.3%, C (general) -- 0.1%, Fe -- 0.2%, total -- 99.9%. The formula of the compound is $TiN_{0.93}$. According to the results of x-ray analysis, the titanium nitride was a single-phase product and had a constant lattice of a = 4.23 Å. Specimens were prepared by die-pressing from initial titanium nitride with particle sizes of 10-20 microns and from powder with mean particle size of about 0.5 micron obtained by pulverization in a vibrational mill in an alcohol medium for 80 minutes. The specimens pressed from unpulverized powders had a porosity of 52-55% prior to sintering and those from pulverized ones -- 38-40%. Sintering was conducted in the 1800-2400°C temperature region.

Results of the sintering of specimens from unpulverized titanium nitride indicated that even at a very high temperature (2400°C), specimens are obtained

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201330006-4"

USSR

KUZENKOVA, M. A., and KISLYY, P. S., Poroshkovaya Metallurgiya, No 5, May 70, pp 34-38

with a porosity of about 50%. Moreover, up to 2200°C there is practically no shrinkage of specimens; porosity at temperatures up to 2000°C even increases and strength rises somewhat only at temperatures above 2200°C. The weight of specimens at sintering temperatures of 1800-2200°C rises slightly in view of the nitrogen absorption inasmuch as in the caked powder, with allowance made for impurities, 1.33% nitrogen is lacking. At 2400°C, the weight of the specimens begins to decrease with a rise in holding time, i.e., titanium nitride vaporization occurs regardless of the low overpressure of nitrogen in the furnace. The diffusion coefficients and activation energy of mass transfer in titanium nitride during sintering in nitrogen were calculated. The activation energy of the process of mass transfer via diffusion equalled 109± kcal/mole.

2/2

KISMERESHKIN, V. P.

Antennas

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TRANSLATION

In Reply Refer to:
FSTC-HT-23-1984-72
DIA Task No. T70-23-01

Date: 8 May 1973

ENGLISH TITLE: WIRE REFLECTOR

SOURCE: Opisaniye Izobretaniya K Avtorskomu Svidetel'stvu No 216803

AUTHOR: V. Kismereshkin

LANGUAGE: Russian

COUNTRY: USSR

REQUESTOR: AMSEL

TRANSLATOR: ACSI K-2528

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Approved for public release: Distribution unlimited.

USSR

UDC 669.18-147:621.746.393

KISSIL', N. YE., MANOKHIN, A. I., and LEYTES, A. V., Elektrostal', Plant and Central Scientific Research Institute of Ferrous Metallurgy

"Solidification of Round Continuous-Cast Ingots Made of Heat-Resistant Nickel Alloys"

Moscow, Stal', No 8, Aug 73, pp 699-700

Abstract: Heat-resistant nicekl-base alloys differ substantially from ordinary carbon steels by their thermophysical properties (liquidus and solidus temperatures, latent heat of crystallization, etc.) which manifest certain features in their solidication. In round continuous-cast ingots with diameters of 100-170 mm it was theoretically and experimentally established that crust thickness in the inital stage of solidification (up to a thickness 30-40% of the radius) does not grow by the conventional square root law with time but by another law close to the linear law. The method of the experiments on a continuous casting unit and calculations are described. Four figures.

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KISSIL', N. Ye.

(3)

Sci JRS 51637

27 JULY 1973

MECHANISM OF REMOVING NITRIDE INCLUSIONS FROM HEAT-RESISTANT ALLOYS DURING MELTING

UDC 669.14:620.192.43/.49

[Article by A. V. Lertsa, N. A. Mironova, and N. Ye. Kissil', (Moscow); Moscow, Izvestiya Akademii Nauk SSSR, Metally, Russian, No 1, 1973, submitted 29 June 1972, pp 39-42]

Processes of metal refining during vacuum-arc melting (VAM) lead to lowering of the content of nonmetallic inclusions and gases in the ingot. Existing concepts on the mechanism of removing inclusions from metal during vacuum-arc remelting (VAR) are basically reduced to processes of floating and dissociation /1-5/. However, as thermodynamic analysis shows, the high temperature of the metal in the region of arc burning eliminates the possible existence of most of the inclusions (including nitrides) in the molten bath /6-10/. At the same time, observations of the process of VAR show that an accumulation of slag occurs on the bath surface rendering a large effect on stability of the electrical mode of remelting and ingot quality. Evidently, refining of metal during VAR is a complex process and its effectiveness under ideal conditions depends on many factors.

Purpose of this work was to study the mechanism of removing nitrides from heat-resistant alloys during VAR using consumable electrodes with a diameter of 125 mm having a substantial difference in the composition, quantity, dimensions and distribution of nonmetallic inclusions.

Heat-resistant nickel alloys KhN56VMTYuKPR (Alloy I) and KhN51VMTYuKPR (Alloy II) were selected for this research. These alloys were alloyed with a significant amount of highly active oxide- and nitride-forming elements. Alloy I contained up to 6% Al and alloy II--up to 4.5% Al and up to 2.5% Ti.

Difference in the contamination of the consumable electrodes was produced by means of pouring the metal into an argon

USSR

UDC 620.174-987:661.666.2

DUBROVSKIY, K. Ye., and KISSEL', V. V., Moscow

"The Effect of Air Pressure on the Brittle Failure of Graphite"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 1, 1973, pp 33-35

Abstract: An experimental study was made of the effect of air pressure on the failure of graphite with static bending. The demonstrated results from over 15 specimens tested with and without hermetic sealing under high pressure indicate that the ultimate tensile stress increases with increasing air pressure. The increase is nearly linear up to 300 at pressures; at higher pressures the ultimate tensile stress increases more rapidly. The character of this dependence is subject to the degree of the isolation of the specimen from the air. Two figures, one formula, two bibliographic references.

1/1

1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--COMMERCIAL FORM OF DIRECT PHTHALOCYANINE DYE -U-

AUTHOR-(02)-KISSIN, B.I., PENKOVSKAYA, N.S.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 266,978
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--01APR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--CHEMICAL PATENT, DYE, CHEMICAL SYNTHESIS, AMINE DERIVATIVE, UREA, ORGANO COPPER COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1801 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0132067

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AA0132067
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SOLY. OF A COM. FORM OF DIRECT PHTHALOCYANINE DYE, SUCH AS SULFONATED CU PHTHALOCYANINE, WAS INCREASED BY MIXING THE DRY DYE WITH UREA.

UNCLASSIFIED

1/3 009 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--PREDICTING EARTHQUAKES BY HYDROGEOLOGICAL METHODS -U-

AUTHOR--KISSIN, I.G.

COUNTRY OF INFO--USSR

SOURCE--MUSCOW, SOVETSKAYA GEOLOGIYA, NO 3, 1970, PP 118-120

DATE PUBLISHED--------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--EARTHQUAKE FORECAST, RADON, GROUND WATER, CHEMICAL COMPOSITION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0710 STEP NO--UR/0215/70/000/003/0118/0120

CIRC ACCESSION NO--AP0114870

UNCLASSIFIED

2/3 009 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0114870

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RECENTLY ATTEMPTS HAVE BEEN MADE TO USE HYDROGEOLOGICAL DATA FOR ESTABLISHING THE PRECURSORS OF EARTHQUAKES. FOR EXAMPLE, THERE WAS FOUND TO BE AN INCREASE IN THE RADON CONCENTRATION IN TASHKENT MINERAL WATERS PRIOR TO THE EARTHQUAKE OF 26 APRIL 1966 AND A MARKED DECREASE AFTER THE MAIN TREMOR. IT HAS ALSO BEEN PROPOSED THAT CHANGES IN CHEMICAL COMPOSITION OF GROUND WATER AND FILTRATION LOSSES FROM WATER BEARING HORIZONS IN BOREHOLES BE ANALYZED FOR PREDICTING EARTHQUAKES. THERE ARE TWO POSSIBLE MECHANISMS CAUSING CHANGES IN WATER BEARING HORIZONS PRIOR TO EARTHQUAKES. 1. CHANGES IN THE REGIME OF WATER BEARING HORIZONS ASSOCIATED WITH THE ACCUMULATION OF STRESSES IN A FOCAL REGION WHICH ARE REFLECTED IN STRATUM PRESSURE AND THEREFORE THE HEADS OF WATER BEARING HORIZONS. THESE CHANGES DEVELOP OVER A LONG PERIOD AND OCCUR IN EACH INDIVIDUAL SECTOR IN A CERTAIN DIRECTION, BUT THEIR INTENSITY CAN BE DIFFERENT DURING DIFFERENT STAGES IN THE PREPARATION FOR AN EARTHQUAKE. 2. MORE CLEARLY EXPRESSED AND ABRUPT DISRUPTIONS IN THE REGIME OF WATER BEARING HORIZONS CAUSED BY A CHANGE IN STRESSED STATE AND FILTRATION AS A RESULT OF THE APPEARANCE OF PLASTIC DEFORMATIONS AND PRECURSOR FISSURES. THERE CAN BE CHANGES IN REGIME OF DIFFERENT SIGNS IN DIFFERENT SECTORS OF THE FOCAL ZONE OVER A CERTAIN PERIOD OF TIME (FOR EXAMPLE, AN INCREASE IN HEAD IS REPLACED BY A DECREASE). THE DEFORMATIONS CAUSED BY PROCESSES IN THE FOCAL ZONE PRECEDING AN EARTHQUAKE CAN BE DETECTED SEVERAL HUNDRED KILOMETERS FROM THE FOCUS. IF THIS IS CONFIRMED, DATA ON THE STATE OF THE SEISMIC REGION CAN BE OBTAINED BY HAVING A QUITE THIN NETWORK OF BOREHOLES.

UNCLASSIFIED

3/3 009 UNCLASSIFIED PROCESSING DATE--090CT70
CIRC ACCESSION NO--AP0114870
ABSTRACT/EXTRACT--IT MAY BE POSSIBLE TO OBSERVE CHANGES IN STRESSES PRIOR TO EARTHQUAKES FROM THE BEHAVIOR OF GROUND WATER IN BOREHOLES TENS AND HUNDREDS OF KILOMETERS FROM THE FOCUS. THE MAXIMUM EFFECT CAN BE OBTAINED USING BOREHOLES SITUATED NOT FAR FROM PROVAVLE EPICENTERS, THAT IS, IN REGIONS OF MAXIMUM GRADIENTS OF THE RATE OF VERTICAL TECTONIC MOVEMENTS AND PARTICULARLY NEAR KNOWN SEISMICALLY ACTIVE FAULTS. IN ZONES OF HYDRODYNAMIC ANOMALIES, WHERE THE MOST IMPORTANT FACTOR DETERMINING THE REGIME OF WATER BEARING HORIZONS IS THE EFFECT EXERTED ON FLUIDS BY GEOSTATIC PRESSURE AND TECTONIC STRESSES, VARIATIONS IN GROUND WATER HEAD MUST REFLECT CHANGES IN STRESSED STAE IN THE CRUST. ZONES OF HYDRODYNAMIC ANOMALIES ARE USUALLY ASSOCIATED WITH YOUND DOWNWARPS WHERE THERE STILL HAS BEEN NO COMPACTION AND CONSOLIDATION OF THICK CLAYEY STRATE OR WITH REGIONS OF INTENSIVE NEOTECTONIC MOVEMENTS. HYDRODYNAMIC ANOMALIES, LIKE SEISMIC PHENOMENA, ARE GENERATED BY RECENT TECTONIC ACTIVITY BUT THEY CAN PERSIST ONLY WHEN THERE IS A GOOD HYDRAULIC ISOLATION OF WATER BEARING HORIZONS, WHICH EXPLAINS THE ABSENCE OF SUCH ANOMALIES IN HIGHLY DISLOCATED MOUNTAINOUS STRUCTURES. ZONES OF HYDRODYNAMIC ANOMALIES ARE FREQUENTLY SITUATED IN THE IMMEDIATE NEIGHBORHOOD OF REGIONS OF SEISMIC ACTIVITY. BOREHOLES DRILLED IN AREAS WITH HYDRODYNAMIC ANOMALIES CAN SERVE AS A SENSITIVE GAGE FOR OBSERVATIONS OF THE STRESSED STATE OF ROCKS IN SEISMIC REGIONS.
FACILITY: INSTITUTE OF ENGINEERING RESEARCH IN CONSTRUCTION.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--POLYMERIZATION OF BENZENE UNDER ULTRAHIGH PRESSURE CONDITIONS COMBINED WITH SHEAR STRAIN -U-

AUTHOR-(04)-CHISTOTINA, N.P., ZHAROV, A.A., KISSIN, YU.V., YENIKOLOPYAN, N.S.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 632-4 (PHYS CHEM)

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, ULTRAHIGH PRESSURE, SHEAR STRESS, BENZENE, POLYMER STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0726 STEP NO--UR/0020/70/191/003/0632/0634

CIRC ACCESSION NO--AT0124396

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124396

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRUIFIED C SUB6 H SUB6 WAS POLYMD. IN A BRIDGEMAN ANVIL LIKE APP. UNDER A PRESSURE OF 85,000 ATM AT TEMPS. OF 0 TO MINUS 50EGREES AND AT A SHEAR OF 750EGREES (UNCER AR OR AIR). SPECTRAL DATA REVEALED THAT THE BROWN PRODUCTS HAD A POLYENE STRUCTURE.

FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INFRARED SPECTROSCOPIC STUDIES OF THE STRUCTURE OF STYRENE PROPYLENE COPOLYMERS -U-

AUTHOR-(02)-DANKOVICS, A., KISSIN, YU.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(4), 802-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--IR SPECTRUM, SPECTROSCOPIC ANALYSIS, MOLECULAR STRUCTURE, STYRENE, PROPYLENE, COPOLYMERIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1264 STEP NO--UR/0459/70/012/004/0802/0809

CIRC ACCESSION NO--AP0134938

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134938

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SPECTROSCOPIC STUDIES OF THE TITLE COPOLYMERS (I) (PREPD. IN THE PRESENCE OF TICL SUB3-ALET SUB3) SUGGESTED THAT POLYMER CHAINS WERE COMPOSED OF CRYST. ISOTACTIC UNITS OF PROPYLENE (II) AND STYRENE (III). THE DISTRIBUTION OF II AND III UNITS IN I WAS DETD. FROM IR ABSORPTION BANDS.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--STEREOSPECIFIC MECHANISM OF OLEFIN POLYMERIZATION BY HETEROGENEOUS COMPLEX CATALYSTS. II. MODEL OF THE STEREOSPECIFIC POLYMERIZATION SITE

AUTHOR-(02)-KISSIN, YU.V., CHIRKOV, N.M.

COUNTRY OF INFO--USSR

SOURCE--EUR. POLYMN. J. 1970, 6(3), 525-35

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CATALYTIC POLYMERIZATION, CRYSTAL LATTICE, TITANIUM CHLORIDE, VANADIUM CHLORIDE, ALKENE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1156 STEP NO--UR/0000/70/006/003/0525/0535

CIRC ACCESSION NO--AP0128578

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128578

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MODEL OF THE ACTIVE SITE OF POLYMN. ON HETEROGENEOUS ZIEGLER NATTA CATALYSTS IS CONSIDERED. IT IS LOCATED ON BASAL PLANES OF LATTICE CRYSTALS OF TYPE ALPHA,TICL SUB3 OF VCL SUB3 AND HAS 2 VACANCIES AT THE TRANSITION METAL ATOM. ONE OF THESE VACANCIES IS BLOCKED BY THE HELICAL POLYMER CHAIN AND THE OTHER IS AVAILABLE FOR OLEFIN COORDINATION. THE STUDY OF THE ACTION OF THIS MODEL SHOWS 2 TYPES OF STEREOSPECIFIC CONTROL OVER MONOMER COORDINATION; BY THE GROWING HELICAL POLYMER CHAIN AND BY NEIGHBORING TRANSITION METAL ATOMS. SOME KINETIC ASPECTS OF OLEFIN POLYMN. WITH PRELIMINARY COORDINATION ARE DISCUSSED. FACILITY: POLYM. DEP., INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--STEREOSPECIFIC MECHANISM OF OLEFIN POLYMERIZATION BY HETEROGENEOUS COMPLEX CATALYSTS. I. DEGREE OF THE CATALYST SURFACE FILLING WITH ACTIVE

AUTHOR-(03)-KISSIN, YU.V., MEZHIKOVSKIY, S.M., CHIRKOV, N.M.

COUNTRY OF INFO--USSR

SOURCE--EUR. POLYM. J. 1970, 6(2), 267-79

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--POLYMERIZATION, CATALYST ACTIVITY, ORGANOMETALLIC COMPOUND, PROPYLENE, TITANIUM CHLORIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1850 STEP NO--UK/0000/70/006/002/0267/0279

CIRC ACCESSION NO--AP0112834

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0112834

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBLEM OF THE DEGREE OF FILLING OF THE CATALYST SURFACE BY ACTIVE SITES IN THE CASE OF HETEROGENEOUS ZIEGLER NATTA CATALYST (A-TICL SUB3-ALET SUB3) IS EXAMD. THE KINETIC DATA FOR PROPYLENE POLYMN. ON THE A-TICL SUB3-ALET SUB3 SYSTEM IN THE PRESENCE OF MEOH AND WATER SHOW THAT THE CONCN. OF ACTIVE SITES ON THE CATALYST SURFACE IS SIMILIAR TO 3.10 PRIME18 SITES-M PRIME2. THIS VALUE CORRESPONDS TO SIMILIAR TO 35 A PRIME2 PER ACTIVE SITE AND LEADS TO THE CONCLUSION THAT ACTIVE SITES COVER PRACTICALLY ALL OF THE CATALYST SURFACE AND CONSEQUENTLY ARE PREDOMINANTLY LOCATED ON THE BASAL PLANES OF THE TICL SUB3 CRYSTALS. SOME ASPECTS OF THE REACTIONS BETWEEN THE CATALYST COMPONENTS AND THE NATURE OF THE ACTIVE SITE ARE DISCUSSED. FACILITY: POLYM. DEP., INST. CHEM. PHYS., MOSCOW, USSR.

UNCLASSIFIED

USSR

KISSINA, L. M.

UDC: 512.25/.26+519.3:330.115

"On a Multiple-Step Extremum Problem"

V sb. Modelir. ekon. protsessov (Modeling of Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 325-334 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V713)

Translation: The author considers the problem of finding $\max b(I)$ from all sequences $I = (i_0, i_1, \ldots, i_{n-1})$, where $b(I) = a_{i_0 i_1} + a_{i_1 i_2} + \ldots + a_{i_{n-1} i_0}$. This problem can be interpreted as finding the crop rotation which yields the maximum average annual income. A relation is found between this problem and the problem of asymptotic behavior of the eigenvalues of some matrix. D. Epshteyn.

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USSR

UDC: 512.25/.26+519.3:330.115

KISSINA, L. M.

"Concerning a Multistep Extremum Problem"

V sb. Modelir. ekon. protsessov (Modeling Economic Processes--collection of works), Moscow, Moscow University, 1971, pp 325-334 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V713)

Translation: The author considers the following problem: to find $b(I)$ with respect to all sequences $I=(i_0, i_1, \ldots, i_{n-1})$, where $b(I)=a_{i_0 i_1}+a_{i_1 i_2}+\ldots+a_{i_{n-1} i_0}$.

This problem may be interpreted as finding the crop rotation which gives the maximum annual yield. A relation is established between this problem and that of the asymptotic behavior of the eigenvalues of some matrix. D. Epshteyn.

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1/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--PAINT AND VARNISH COATINGS APPLIED BY ELECTRODEPOSITION -U-

AUTHOR-(05)-TIKHONOVA, R.M., TSYRLIN, M.I., ZHURAVLEV, A.K., ROZNO, L.I., KISTANOVA, G.A.

COUNTRY OF INFO--USSR

SOURCE--AVTO. PROM. 1970, 36(4), 39-41

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ELECTRODEPOSITION, PAINT, VARNISH, TEST METHOD, AUTOMOBILE, CORROSION RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/0773 STEP NO--UR/0113/70/036/004/0039/0041

CIRC ACCESSION NO--AP0136210

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136210

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TESTING METHOD WAS DEVELOPED FOR DETG. THE CORROSION RESISTANCE OF AUTOMOTIVE COATINGS. THE SAMPLES WERE EXPOSED TO A SPRAY OF 3PERCENT NACL SOLN. AT 40-50DEGREES IN A SPECIAL CHAMBER. SINGLE ENAMEL LAYERS DEPOSITED ON PHOSPHATIZED METAL BY THE ELECTROSTATIC METHOD WERE CORRODED FASTER THAN THE COATINGS OBTAINED BY THE CONVENTIONAL SPRAYING OF A GROUNDCOAT FOLLOWED BY AN ENAMEL.

FACILITY: GORK. AVTOZAVOD, GORKI, USSR.

UNCLASSIFIED

KISTENEV, B.A.

Neurology

JPRS-59818
16 Aug 1973

ANALYSIS OF CONTROL OF ENUNCIATION IN INDIVIDUALS SUSTAINING A CEREBROVASCULAR ACCIDENT

[Article by [illegible] (Institute of Neurology, USSR Academy of Medical Sciences); Moscow, Problemy Upravleniya Funktsiyami Golovnogo Mozga, Russian, 1973, pp 140-144]

Control and regulation of activity of different organs and systems extends to all functions of the human organism, including speech. The processes of development of speech acts is extremely complex. And this is understandable, since speech cannot be considered apart, unrelated to psychic activity. Human speech includes both higher "physical", unrelated to psychic related directly to higher cortical areas, and more elementary articulation, which, in essence, is a purely motor act. While there are many investigations dealing with the complex "phonical" aspect of speech (N.I. Astvatsaturov, 1908; V.M. Bekhterev, 1903; Ye.S. Borisenpol'skiy, 1924; E.S. Bery, 1964; A.R. Luriya, 1947; I.D. Sapir, 1934; R.A. Tkachev, 1955; I.M. Tsemkovskiy, 1968; T. Alajouanine, 1948; A. Kussmaul, 1877; P. Marie, 1906, and others), including the question of regulation thereof, insufficient study has yet been made of control of the more elementary function, articulation. The few works dealing with this area (S.N. Davidenkov, 1916; Ye.N. Vinarskaya, 1969; L.B. Litvak, 1959; A.R. Luriya, 1969; M.S. Margulis, 1926; Z. Bay, 1937; H. Lutzmann, 1914; Hans von Mayendorf, 1925; W. Penfield and L. Roberts, 1959; K. Wilson, 1955) discuss primarily the distinctions of various forms of dysarthria, classification and treatment thereof. Unfortunately, they do not deal sufficiently with problems of control and regulation of articulation. The complex and highly differentiated structure of the brain compels us to proceed with extreme caution with respect to explanation of the link between localization of lesions and defects in regulatory mechanisms, particularly in the case of speech pathology. In this regard, it appeared important to us to determine the distinctions of disturbances referable to control of articulation in the presence of CVA [cerebrovascular accident]. For this purpose, we analyzed the findings on 193 patients who sustained acute impairment of cerebral circulation presenting lasting dyarthric disorders. The patients ranged in age from 30 to 70 years. Their chief complaint was either essential hypertension (99 patients) or atherosclerosis (81). With respect to nature of CVA, impaired cerebral circulation, of the ischemic type, was observed in most cases (188).

Acc. Nr: AP0049791 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR 0138

101586n **Molecular-weight distribution of cis-1,4-polybutadiene in relation to its preparation conditions.** Shatalov, V. P.; Grigor'eva, L. A.; Kistereva, A. E.; Grigor'ev, V. E.; Pozina, E. N. (Voronezh. Filial Vses. Nauch.-Issled. Inst. Sin. Kauch. im. Lebedeva, Voronezh, USSR). *Kauch. Rezina* 1970, 29(1), 1-3 (Russ). The mol. wt. distribution of the title polymer (I) dissolved in C_6H_{14} + C_7H_{16} was studied by ultracentrifugation. Increased degree of conversion of butadiene (II) led to a displacement of the mol. wt. distribution curve max. towards the higher mol. wts., but increased polymn. temp. of II caused a shift in the mol. wt. distribution curve max. toward lower mol. wts. The mol. wt. distribution of I depended on the way in which the organoaluminum compd. and Ti halide catalysts were added. Thus, fractional addn. of the 2 catalysts to polymg. II brought about a significant widening in the mol. wt. distribution of I and increased content of low mol. wt. and high mol. wt. fractions. Fractional addn. of II had a favorable effect on polydispersity and improved polymer extrudability. CKJR

95.

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REEL/FRAME
19801713

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KISTOVA, Ye M.

SPIS 59005
6-73

V-8. TRANSPORT OF THE GaAs-GaP SOLID SOLUTION IN THE GAS TRANSPORT REACTION WITH WATER VAPOR

[Article by Yu. M. Kistova, V. N. Maslov, V. V. Nechayev, B. A. Sakharov, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Svoystvam Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 59]

In this paper an experimental study was made of the variation of the composition of the GaAs-GaP solid solution during its transport by water vapor in the sandwich process. The transport is realized from a source with a temperature of 930°C on graphite substrate with a temperature of 920°C. It was established that with a GaP concentration to 50 percent the deposit is enriched in phosphorus; at higher concentrations it is enriched with arsenic. In order to explain the experimental data, the theory of regular solutions was used. The value of the energy of interaction of the molecules in the investigated solution was obtained. The effect of the nonideal nature of the solution on the variation and composition of the deposit by comparison with the composition of the source during the gas transport reaction is discussed.

- 59 -

KISTOVA, YE. M.

JPRS 59308
6-73

XII-13. STUDY OF PERFECTION OF THE STRUCTURE, UNIFORMITY AND COMPOSITION OF GaAs-GaP HETEROCRYSTALLINE FILMS OBTAINED BY THE SANDWICH METHOD

[Article by M. G. Shumskiy, L. N. Zhukova, Ye. M. Kistova, V. M. Maslov, V. G. Fomin, Moscow, Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 117]

The x-ray double-crystal spectrometer methods, the method of electron diffraction patterns and the x-ray spectral microanalysis were used to study the perfection of the structure, the uniformity and composition of the epitaxial monocrystalline films of solid solution of the GaAs-GaP system. The films were grown by the sandwich method using H_2O and HCl vapor on GaAs substrates oriented with respect to the (100) and (111) planes as the carrier gas. It is demonstrated that the homogeneity with respect to composition and the perfection of the film structure become worse with an increase in the GaP content, beginning especially sharply at 50 percent GaP. Here, it is established that the violations of the periodicity of the structure in the given epitaxial films are basically related to the presence of the disoriented mosaic blocks.

The noncorrespondence of the composition of the film obtained and the initial charge were detected. This noncorrespondence decreases with use as the H_2O vapor carrier.

The presence of a negative deviation from the Vegard rule was established, which indicates compression of the lattice with the formation of the solid solution.

USSR

UDC 621.315.592

YUROVA, YE. S., SOLOV'YEVA, YE. V., KISTOVA, YE. M., D'YAKONOV, L. I., IGLITSYN, M. I., KEVORKOV, M. N.

"Autocompensation of Donors in Gallium Arsenide and the $GaAs_{1-x}P_x$ Solid Solution"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 498-501

Abstract: A study was made of the autocompensation phenomenon (constancy of the degree of compensation in a broad alloying range) detected in films of $GaAs_{1-x}P_x$ alloyed with Te and Se and GaAs alloyed with Se. The dependence of the degree of compensation and the concentration of the compensating centers in the neutral state was obtained as a function of the composition of the solid solution. A deep level connected with compensating centers was detected, and the dependence of its activation energy on the composition of the solid solution was determined.

The study was made in the entire composition range of the solid solution and also in films of gallium arsenide alloyed with Se. The temperature range was expanded to 800° K. The degree of compensation in the $GaAs_{1-x}P_x$ close with respect to composition to GaP was determined by the curve for the temperature dependence of the charge carrier concentration by the same procedure as used

1/3

USSR

YUROVA, YE. S., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 498-501

earlier [M. I. Iglitsyn, et al., FTP, No 4, 230, 1970]. Graphs are presented showing the degree of compensation and the concentration of the compensating defects in the neutral state as functions of the composition of $GaAs_{1-x}P_x$ crystals, the concentration of the ionized detectors as a function of the electron concentration in the films of GaAs alloyed with Se, the temperature dependence of the charge carrier concentration in the compensated samples of $GaAs_{1-x}P_x$, and the dependence of the approximate activation energy of the D' level on the composition of the $GaAs_{1-x}P_x$ crystals. The divergence between the degree of compensation observed in the GaAs crystals ($K \approx 0.5$) and the value of K obtained by extrapolating the function K(x) for the solid solution to $x = 0$ is explained by the difference between the growth temperatures of these crystals $\approx 200°$. The calculation of N_v^0 from the value of K in GaAs by the previously obtained formula

$$K = \frac{N_A}{N_D} = \frac{N_v^0}{N_c} e^{E_g - E_a/kT},$$

2/3

YUROVA, YE. S., et al., Fizika i Tekhnika Poluprovodnikov, Vol 6, No 3, 1972, pp 498-501

leads to a value of the same order as the value of N_v^0 in $GaAs_{1-x}P_x$ determined on heat treatment of the crystals at a temperature close to the growth temperature of the GaAs films (N_v^0 is the concentration of the compensating defects in the neutral state, N_c is the effective density of the states of the conduction band, and E_g is the width of the forbidden band).

UNCLASSIFIED

TITLE--COMPENSATION OF DONORS IN A GAAS SUBO TIMES2 P SUBO TIMES8 SOLID SOLUTION -U-

PROCESSING DATE--18SEP70

AUTHOR-(04)-IGLITSYN, M.I., KISTOVA, YE.M., RYTOVA, N.S., YUROVA, YE.S.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 230

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--SOLID SOLUTION, ACTIVATION ENERGY, CRYSTAL LATTICE VACANCY, ZINC, TELLURIUM, SELENIUM, PHOSPHORUS, GALLIUM ARSENIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0579

STEP NO--UR/0449/70/004/001/0230/0230

CIRC ACCESSION NO--AP0105562

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105562

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEGREE OF COMPENSATION OF A DONOR IMPURITY (K EQUALS N SUBA-N SUBD) IN N-TYPE GAAS SUB1 NEGATIVEX P SUBX SOLID SOLNS. IS CONST. FOR X EQUALS 0.7-0.9 AND N SUBD EQUALS 10 PRIME17 MINUS 10 PRIME19-CM PRIME3 AND DOES NOT DEPEND ON POSSIBLE SMALL SCALE DOPING BY TE, SE, (TE PLUS ZN), OR (SE PLUS ZN). THE COMPENSATING CENTERS ARE SUPPOSED TO BE SINGLY CHARGED LATTICE DEFECTS. THE ANNEALING OF BOTH N TYPE AND P TYPE SAMPLES AT VARIOUS TEMPS. AND AT VARIOUS PARTIAL PRESSURES OF AS SHOWED THAT THE CONCN. OF THESE DEFECTS DEPENDS EXPONENTIALLY ON TEMP. WITH AN ACTIVATION ENERGY OF 1.5 PLUS OR MINUS 0.3 EV AND THAT IT DECREASES WITH INCREASING AS PARTIAL PRESSURE. THE COMPENSATING CENTERS ARE PROBABLY ASSOCD. WITH AS VACANCIES.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHEMICAL HETEROGENEITY OF EPITAXIAL LAYERS OF GALLIUM PHOSPHIDE GALLIUM ARSENIDE SOLID SOLUTIONS -U-

AUTHOR-(05)-GIMELFARB, F.A., KISTOVA, YE.M., MASLOV, V.N., SAKHAROV, B.A., FISTUL, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 461-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--GALLIUM, PHOSPHIDE, ARSENIDE, SOLID SOLUTION, EPITAXIAL GROWTH, SPECTROSCOPY, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1344 STEP NO--UR/0363/70/006/003/0461/0467

CIRC ACCESSION NO--AP0121037

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121837

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REASONS FOR THE EMERGENCE AND THE METHODS OF ELIMINATION OF CHEM. HETEROGENEITY OF GAP SUBX AS SUBI NEGATIVEX SINGLE CRYSTALS WERE INVESTIGATED. THE CRYSTALS WERE GROWN BY THE SANDWICH METHOD ON GAAS SUBSTRATES WITH (111) ORIENTATION, BY USING A POWD. SOURCE PLACED 0.5 MM FROM THE SUBSTRATE. THE TRANSFER WAS ACCOMPLISHED IN A MOIST H ATM. AT AN AV. TEMP. OF 930-500EGREES. THE GROWTH RATE WAS 10-20 MU,HR. THE DISTRIBUTION HETEROGENEITY OF THE FUNDAMENTAL COMPONENTS OF THE GAP-GAAS SOLID SOLN. WAS DETERMINED BY LOCAL X RAY SPECTROGRAPHIC ANAL. FOR SOLID SOLNS. WITH GAAS PREDOMINANT, THE HETEROGENEITY SHOWS UP PRIMARILY BECAUSE OF THE NONHOMOGENEITY OF THE SOURCE, AND CAN BE ELIMINATED BY HOMOGENIZATION. AT A HIGH GAP CONTENT, A MORE SIGNIFICANT EFFECT IS EXERTED ON THE UNIFORMITY OF THE CRYSTALS BY LATERAL GAS ETCHING OF THE GAAS SUBSTRATE, WHICH CAN BE REDUCED TO A MIN. BY MASKING THE SUBSTRATE, WITH THE EXCLUSION OF THE SECTION INTENDED FOR GROWING THE EPITAXIAL LAYER. PRIOR HOMOGENIZATION OF THE SOURCE AND THE MASKING OF THE SUBSTRATE ARE THE NECESSARY CONDITIONS FOR THE ELIMINATION OF CHEM. HETEROGENEITY OF SINGLE CRYST. LAYERS OF GAP-GAAS SOLID SOLNS. DURING EPITAXIAL GROWTH BY THE SANDWICH METHOD.

UNCLASSIFIED

USSR

UDC 669.3+669.24

BEREGOVSKIY, V. I., KISTYAKOVSKIY, B. B.

"Metallurgy of Copper and Nickel"

Moscow, Metallurgiya medi i nikelya, "Metallurgiya" Publishing House, 1971, 456 pp

Translation of Foreword: In the Ninth Five-Year Plan the workers in nonferrous metallurgy were presented with the problem of further increasing the volume of production on the basis of a sharp rise in effectiveness. In accordance with this plan in future years the entire growth in the volume of production in this field must be achieved without an increase in the number of production personnel, i.e., entirely through a rise in the productivity of labor. A successful solution of this problem requires basic engineering transformation of enterprises, the introduction of advanced, highly productive techniques and technology, and the solution of complex scientific and technical problems. Extensive use of the achievements of the modern revolution in technology, rapid technical progress, and the improvement of technology impose ever-increasing requirements on the level of qualifications of workers and dictate an increase in the percentage of metallurgical specialists in industry.

The textbook "Metallurgy of Copper and Nickel" is intended for tekhnikum students who are studying the metallurgy of heavy nonferrous metals; it may be

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USSR

BEREGOVSKIY, V. I., KISTYAKOVSKIY, B. B., Metallurgiya medi i nikelya, 1971, 456 pp

useful to engineering and technical workers, masters, and worker-innovators in the industry.

The book reflects the great shifts in the development of the metallurgy of copper and nickel occurring in recent years and describes new processes and improvements in equipment. The theoretical bases of the processes are presented, starting from modern scientific ideas. Attention is given to metallurgical calculations. Each chapter has problems for reviewing the most important topics.

The introduction and Chapters I-XIII and XXIV-XXXIV were written by Engineer V. I. Beregovskiy and Chapters XIV-XXIII were written by Engineer B. B. Kistyakovskiy

Table of Contents [Abridged]:

2/4

USSR

BEREGOVSKIY, V. I., KISTYAKOVSKIY, B. B., Metallurgiya medi i nikelya, 1971, 456 pp

3/4

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--REPAIR OF LETHAL AND MUTATIONAL LESIONS INDUCED BY CHEMICAL AGENTS IN EXTRACELLULAR BACTERIOPHAGE LAMBDA -U-

AUTHOR--KISLYAN, ZH.A.

COUNTRY OF INFO--USSR

SOURCE--GENETIKA 1970, 6(3), 78-88

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BACTERIOPHAGE, MUTAGEN, ESCHERICHIA COLI, BACTERIA MUTATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/0581

STEP NO--UR/0473/70/006/003/0078/0088

CIRC ACCESSION NO--AP0122702

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0122702 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HOST CELL REACTIVATION OF MUTATIONAL AND LETHAL DAMAGES CAUSED BY NITRITE AND SARCOLYSIN (I) IN LAMBDA SUB11 AND LAMBDA SUB11 VIR PHAGES WERE STUDIED. IN EXPTS. WITH HNO SUB2, WHICH ACTS ESSENTIALLY BY DEAMINATION OF DNA BASES, BOTH SURVIVAL AND RELATIVE PROPORTION OF VIR MUTATIONS AT THE 0.25-1M LEVELS OF MUTAGEN WERE SIMILAR IN BOTH HCR PRIME POSITIVE AND HCR PRIME NEGATIVE STRAINS OF ESCHERICHIA COLI K-12 AND NO HOST CELL REACTIVATION WAS APPARENT. THE LEVEL OF VIR MUTANT INDUCED BY THE DIRECT MUTAGENIC EFFECT OF THE DRUG WAS 20 TIMES THAT OF THE CONTROL. IN EXPTS. WITH I, WHICH ACTS BY CROSSLINKING DNA STRANDS, HOST REACTIVATION OF BOTH LETHAL AND PREMUTATIONAL DAMAGE WAS OBSERVED AT 0.001M I (TREATMENT 10-45 MIN); LAMBDA SUB11 VIR MUTANTS WERE PRODUCED BOTH BY THE DIRECT ACTION OF I AND BY THE RECOMBINATION OF DAMAGED PHAGE WITH HOST PROPHAGE. LESION REPAIR WAS CONSIDERABLY LESS EFFECTIVE WHEN DAMAGE WAS PRODUCED BY I THAN BY UV IRRADN. THE LEVEL OF INDUCED MUTATIONS WAS 43 TIMES ABOVE NORMAL IN THE CASE OF HCR PRIME NEGATIVE (LAMBDA SUB11) AND 16 TIMES ABOVE NORMAL IN THE CASE OF HCR PRIME POSITIVE (LAMBDA SUB11) STRAIN.

FACILITY: INST. EXP. BIOL. EREVAN, USSR.

UNCLASSIFIED

USSR

UDC 621.382.3.026.439

KISURIN, A.A., FEDOROV, YE.I., SHCHEVELEV, M.I.

"Some Problems Of The Initial Statistical Processing Of The Results Of Measurements Of The Electrical Parameters Of Power High-Frequency Transistors"

Sb. Tr. po poluprovodnikovym materialam, priboram i ikh primeneniyu (Collection Of Works On Semiconductor Materials, Devices, And Their Applications), Voronezh, 1971, pp 169-178 (from RZh:Elektronika i yeye primeneniye, No 11, Nov 1972, Abstract No 11B252)

Translation: The application of methods of correlation--regressive analysis to the results of measurements of the electrical parameters of power HF transistors is described. For correct application of these methods, the requirements which are imposed on the conditions for collection of statistical material are considered: 1) Elimination of sharply separated results of measurements; 2) Determination of the necessary and sufficient quantity of transistors in the sample; 3) Verification of homogeneity of several samples. The analysis was conducted on ten lots. It is shown that 100 transistors in a lot is a sufficient quantity for the specific case considered of the difference of a temporal nature during the collection of statistical material for a correlation--regressive analysis of parameters. 3 ref. A.M.

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1/2 058 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--SOME COMMON PROPERTIES OF MAGNETOHYDRODYNAMIC TURBULENCE IN TUBES AND THEIR INVESTIGATION WITH THE AID OF CONDUCTION ANEMOMETERS -U-

AUTHOR-(04)-BRANOVER, G.G., GELFGAT, YU.M., KIT, L.G., TSINOBER, A.B.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDKOSTI I GAZA, MAR.-APR. 1970, P. 35-44

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MAGNETOHYDRODYNAMIC FLOW, TURBULENT FLOW, ANEMOMETER, MAGNETIC FIELD EFFECT, REYNOLDS NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1188 STEP NO--UR/0421/70/000/000/0035/0040

CIRC ACCESSION NO--AP0124842

UNCLASSIFIED

2/2 058 UNCLASSIFIED

CIRC ACCESSION NO--AP0124842 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THEORETICAL CONSIDERATIONS CONCERNING THE MECHANISM RESPUNSIBLE FOR THE SUPPRESION MHD TURBULENCE BY A MAGNETIC FIELD. THE PRINCIPAL TENDENCIES CHARACTERISTIC OF THE REARRANGEMENT OF PERTURBED MOTION UNDER THE INFLUENCE OF A MAGNETIC FIELD ARE STUDIED ON THE BASIS OF RESULTS OF INVESTIGATIONS OF MHD TURBULENCE BY METHODS IN SPECTRAL THEORY. IT IS ASSUMED THAT TURBULENCE IS UNIFORM AND THAT THE MAGNETIC REYNOLDS NUMBER IS MUCH SMALLER THAN UNITY. THE THEORETICAL RESULTS OBTAINED ARE VERIFIED BY EXPERIMENTS PERFORMED BY MEANS OF A CONDUCTION ANEMOMETER. THE THEORY OF THIS DEVICE IS REVIEWED.

UNCLASSIFIED

AA0046439

UR 0482

Soviet Inventions Illustrated, Section LII Mechanical and General, Derwent, 1-70

242607 SUPERSONIC ADJUSTABLE DIFFUSOR with moving central cone and internal shaped ring, differing in the diameter of the base of the cone being equal to the entry diameter of the ring. This improves characteristics at the normal regime. The increase in area of the neck of the diffusor is achieved by moving cone 1 and central cone 2. The third cone 3 serves as a shell. The diameter of the base of cone 2 is equal to the entry diameter of internal ring 4. In this case the maximum increase of the neck of the diffusor is 45%. The device is intended for aircraft jet engines and improves thrust for take-off.

2.6.54 as 465146/24-6. KITANIN N.E. (10.9.69) Bul 15/25.6.69. Class 46g. Int.Cl.F 02k.

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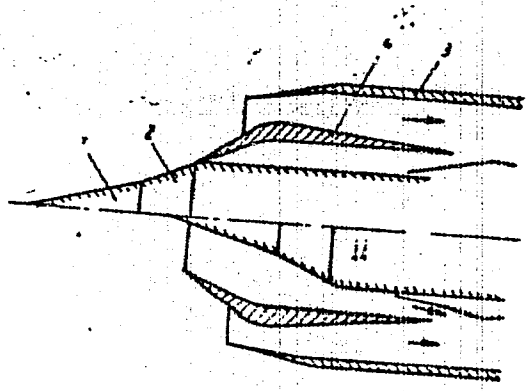

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19781665

USSR

UDC 621.4/.6:533.6

BONDARENKO, V. V., LISIYENKO, V. G., KITAYEV, B. I.

"Investigation of the Ejecting Capacity of an Ejector With a Short Mixing Chamber"

Sb. nauch. tr. Perm. politekhn. in-t (Collection of Scientific Works. Perm' Polytechnical Institute), 1971, No. 91, pp 207-212 (from RZh-Mekhanika, No 6, Jun 72, Abstract No 6B409)

Translation: The results of an experimental study of a low-head gas ejector with a central convergent active flow nozzle and a cylindrical mixing chamber are presented. The low-head air is sucked in from the atmosphere without choking. There is no output diffuser in the ejector so that exhaust into the atmosphere is directly from the mixing chamber. The effect of the length of the mixing chamber and the distance l from the cutoff of the nozzle to the input cross section of the mixing chamber on the ejection coefficient was investigated. It was established that the maximum value of k for small l is achieved for a relative length of the mixing chamber equal to 6 calibers (as referred to the diameter of the mixing chamber). For large l (about 20 calibers), the maximum value of k was achieved for a mixing chamber length of $\sim$4-4.5 calibers. Yu. A. Lashkov.

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USSR

UDC 621.762:669.018.5(088.8)

AMOSOV, V. M., KARELIN, B. A., KITAYEV, B. L., SAVICHEVA, M. A., GUSEV, A. M., PAPILOV, V. P., and STEPANOVA, T. I.

"Powder Metal Alloy"

USSR Author's Certificate No 254092, filed 12 Jun 69, published 20 Mar 70 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G357 P)

Translation: A powder metal electrode alloy based on W is proposed for spark gaps. To stabilize the emission properties and to increase the rate of electrode atomization barium zirconate is introduced into the alloy composition. The barium zirconate possesses stable properties under the conditions of exploitation and does not interact with the remaining components of alloy during sintering in the temperature interval 1550-1600°. The alloy is of the following composition: 0.5-4% Ni, 4-5% barium zirconate, and the remainder -- W. The alloy structure is in the form of fine-grain W, coated with solid W solution in Ni, and dispersed particles of barium zirconate uniformly distributed in grains and along grain boundaries.

V. Chelnokov

1/1

USSR

UDC 612.215.014.2-014.481/.482

KITAYEV, E. M., ORESHINA, A. F., TARASOV, S. I., and YAS'KOVA, V. Z., Laboratory of Radiation Genetics and Remote Radiation Pathology, Central Scientific Research Institute of Roentgenology and Radiology, Ministry of Health USSR, and Laboratory of Hygiene of the Air, Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of Health RSFSR

"Morphological Changes in the Lungs Produced by Single Hot Particles Experimental Study"

Moscow, Meditsinskaya Radiologiya, No 4, 1970, pp 52-56

Abstract: About 100 hot particles (particles of Co^{60} 10-20 microns in size with an activity of 10^{-8} to 10^{-9} C) in 0.2 ml of physiological saline were injected into the jugular vein of rats. Morphological changes in the lungs were studied 5-30 days thereafter. No significant changes were observed in the energy absorption zone. The zone of absorption of doses of 10^2 and 10^6 rads occupied a space with a radius of 200 microns, while destructive changes appeared only within a radius of 15-20 microns. Although there was an absence of focal necrosis, changes were noted in the blood vessels containing particles - homogenization and loss of structure of the walls, swelling of collagenous and argyrophil fibers. The intensity of the destructive processes was unrelated to the size of the radiation

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201330006-4"

USSR

KITAYEV, E. M., et al, Meditsinskaya Radiologiya, No 4, 1970, pp 52-56

dose. After 20-30 days, besides the vascular changes, desquamation and necrobiosis of endothelial cells, there were signs of proliferation of cellular elements in the adventitia. The radioactive particles had no effect on the adjacent structures. Thus, the changes observed appear to be comparatively insignificant from the standpoint of injury to lung tissue and impairment of respiratory function.

Acc. Nr: AT0102940 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code: UR 0148

KITAYEV E.M.

113225g Determination of the temperature field of the working wall of a crystallizer. Zhuravlev, V. A.; Kitaev, E. M.; Skvortsov, A. A. (Gor'k. Politekh. Inst., Gorki, USSR). *Izv. Vyssh. Ucheb. Zaved., Chern. Met.* 1970, 13(1), 163–6 (Russ). Math. (*A*) and elec. analog (*B*) methods were developed for calcg. and measuring temp. profiles of internally water-cooled crystallizer walls. Isothermal lines (90–120°) detd. by *A* and *B* showed good agreement for a crystallizer model (with a shallow water channel over 70% of its surface) operating at a heat flow (q) = 680,000 kcal/m² hr, heat-transfer coeff. (α) = 25,000 kcal/m² hr degree, thermal cond. (λ) = 320 kcal/m hr degree. The math. equation can be used to calc. q values from known crystallizer wall temps.

DPJR

REEL/FRAME
19861006

1/2 026 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--MORPHOLOGICAL CHANGES IN THE LUNGS OF RATS IN THE ACTION OF SINGLE FIXED HOT PARTICLES (EXPERIMENTAL RESEARCH) -U-

AUTHOR-(04)-KITAYEV, E.M., ORESHINA, A.F., TARASOV, S.I., YASKOVA, V.Z.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 15, NR 4, PP 52-56

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MORPHOLOGY, LUNG, RAT, COBALT ISOTOPE, RADIATION BIOLOGIC TISSUE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0955 STEP NO--UR/0241/70/015/004/0052/0056

CIRC ACCESSION NO--AP0109112

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--09OCT70

2/2 026

CIRC ACCESSION NO--AP0109112

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER SETS FORTH THE RESULTS OF EXPERIMENTAL STUDY OF MORPHOLOGICAL CHANGES IN THE LUNGS OF RATS UNDER THE EFFECT OF SINGLE FIXED HOT PARTICLES. PARTICLES OF CO PRIME60 OF MICROSCOPIC SIZE WITH AN ACIVITY OF 10 PRIME NEGATIVE9 CURIE WERE USED. THE AUTHORS DEMONSTRATE THE ABSENCE OF FOCAL NECROSIS AT THE SITES OF FIXATION OF SINGLE HOT PARTICLE IN IRRADIATION DOSES OF THE SURROUNDING TISSUES OF 10 PRIME NEGATIVE4-10 PRIME NEGATIVE5 RAD DURING A PERIOD FROM 5 TO 30 DAYS. THERE WERE FOUND SOME MORPHOLOGICAL CHANGES IN VESSELS AT THE SITE OF FIXATION OF PARTICLES AND IN INTERALVEOLAR MEMBRANES WITHOUT A DEFINITE RELATION WITH THE VALUE OF THE RADIATION EFFECT.

UNCLASSIFIED

Acc. Nr: AP0034100 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR 0078

K

71292u Analysis of conditions for cadmium selenide precipitation from aqueous solutions by sodium selenosulfate. Kitaev, G. A.; Terekhova, T. S. (Ural. Politekh. Inst. im. Kirova, Sverdlovsk, USSR). *Zh. Neorg. Khim.* 1970, 15(1), 48-51 (Russ). Equil. const. (K) of $SeSO_3^{2-}$ hydrolysis was detd. in the system $CdCl_2$–NH_4OH–Na_2SeSO_3–KOH. The overall reaction can be described by the stoichiometric equation $Cd(NH_3)_4^{2+} + SeSO_3^{2-} + 2OH^- \leftrightarrow CdSe + SO_4^{2-} + 4NH_3 + H_2O$. At 25°, pK is 34.64. A CdSe mirror forms readily in the presence of $Cd(OH)_2$ in the medium. HMJR

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REEL/FRAME
19710743

USSR UDC 621.373.43

MATVEYEV, B. M., KITAYEV, V. A., Special Design Office for Automation in Rolling and Pipe Production

"A Device for Generating Standard Time Intervals"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296241, division H, filed 21 Apr 69, published 12 Feb 71, p 186

Translation: This Author's Certificate introduces a device for generating standard time intervals which contains a standard frequency oscillator, frequency divider, a counter with controllable division coefficient, and a triggering device. As a distinguishing feature of the patent, the device is simplified and reliability is improved by connecting the output of the standard frequency oscillator to the frequency divider through an additional control circuit made up of two AND cells, a flip-flop and a delay line. Each cell of the frequency divider is connected to the synchronizing input of the corresponding digital place in the above-mentioned counter, the output of the counter being connected to the line which sets the frequency divider to the initial state, and to one of the inputs of the flip-flop. Connected to the other input of the flip-flop is the first AND cell, whose inputs are

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MATVEYEV, B. M., KITAYEV, V. A., Otkrytiya, izobreteniye, promyshlennyye obraztsy, tovarnyye znaki, No 8, Mar 71, Author's Certificate No 296241, division H, filed 21 Apr 69, published 12 Feb 71, p 186

connected to the reference frequency oscillator and the triggering device. The output of the flip-flop, which is also the output of the time-interval generating device itself, is connected to the input of the counter, and through a delay line to the second AND cell, the second input of this AND cell being connected to the standard frequency oscillator.

1/2 029 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EVALUATION OF THE PROPERTIES OF CAST IRON BASED ON CHILL TESTS -U-

AUTHOR--LEVI, L.I., KLETSKIN, G.I., SOBOL, N.L., KITAYEV, YA.A.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROIZVOD. 1970, (1), 6-7

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, SILICON, METALLURGIC PROCESS CONTROL, TENSILE STRENGTH, METAL HARDNESS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1318 STEP NO--UR/0128/70/000/001/0006/0007

CIRC ACCESSION NO--AP0106095

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--11SEP70

2/2 029

CIRC ACCESSION NO--AP0106095

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF INDUSTRIAL CONTROL DATA AN ATTEMPT WAS MADE TO CORRELATE TENSILE STRENGTH AND HARDNESS VALUES WITH RESULTS OF THE CHILL TEST FOR 2 GRADES OF GRAY CAST IRON MELTED IN AN 11 TON COKE GAS CUPOLA WITH PREHEATED BLAST (C 2.84-3.31, 3.07-3.34; SI 1.21-2.84, 1.31-1.84; MN 0.80-1.72, 0.90-1.63; P 0.25, 0.25, S 0.11, 0.11 WT. PERCENT, RESP.). THE 1ST CAST IRON WAS MODIFIED WITH CA 0.4-1.1PERCENT, WHILE THE 2ND WAS UNMODIFIED. STUDIED CAST IRONS WERE CAST INTO DRY MOLDS DIAM. 30, LENGTH 340 MM, AS WELL AS IN CHILL TEST MOLDS, REPRESENTING PLATES 50 TIMES 20 AND 50 TIMES 8, RESP., IN WHICH THE ONE SIDE WAS COOLED BY A MASSIVE METAL BLOCK. REGRESSION EQUATIONS WERE CALCD. FOR THE TENSIEL STRENGTH AND HARDNESS DETNS.; THESE DID NOT SHOW ANY SIGNIFICANT CORRELATION. THE REASON FOR THIS WAS THAT SI CONCN. AFFECTED THE FORMATION OF CEMENTITE LAYER 5-7 TIMES MORE STRONGLY THAN IT AFFECTED THE TENSILE STRENGTH AND HARDNESS.

UNCLASSIFIED

USSR

UDC 621.385.63

ALGAZINOV, E. K., KITAYEV, YU. I.

"Study of Joint Amplification of Monochromatic and Noise Signals in a Traveling Wave Tube"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2224-2227

Abstract: Assuming that an operating signal with a frequency ω_0 and an amplitude E_0 and noise with a spectral denisty $G(\omega)$ and a band $\Delta\omega = \omega_2 - \omega_1$ is input to a traveling wave tube, a study was made of the case where the signal and noise do not overlap in the frequency range. The frequency difference of the signal and noise is assumed to be such that it is possible not to consider the dispersion and variation of the coupling impedance with frequency, and the noise band is such that within its limits it is possible not to consider the nonuniformity of the frequency characteristic of the tube. By considering that the operating signal at the input has low amplitude (corresponding to the linear amplification region) and using the procedure applied by E. K. Algazinov, et al. [E. K. Algazinov, et al., Radiotekhnika i elektronika, Vol 16, No 6, 1028, 1971] to find the components of the high frequency field at the tube output and considering that n (n - 1) combinations participate in the formation of the intermodulation noise near the operating signal, an expression is obtained for the 1/2

USSR

ALGAZINOV, E. K., Radiotekhnika i Elektronika, Vol 17, No 10, 1972, pp 2224-2227

mean total power of the analyzed intermodulation noise. The variation of the ratio of the signal to the intermodulation product on variation of the mean input power of the noise is then analyzed and plotted graphically. Formulas are obtained permitting investigation of the ratio of the signal to the intermodulation noise during amplification of the useful signal in the presence of a noise signal which can be useful when analyzing the operation of traveling wave tubes in multichannel communication systems.

USSR UDC: 621.385.632.001.5

ALGAZINOV, E. K., KLEMENT'YEV, F. M., KITAYEV, Yu. I.

"Analysis of Singularities of the Nonlinear Mode of a Traveling-Wave Tube When a Multiple-Frequency Signal is Amplified"

Moscow, Radiotekhnika i Elektronika, Vol. 16, No 6, Jun 71, pp 1028-1032

Abstract: The method of successive approximations is used to analyze the combination components which arise at the output of a traveling-wave tube when several signals are simultaneously amplified. Simple analytical expressions are found for the case of small frequency differences. The dispersion properties of the system were disregarded, thus limiting the maximum possible frequency spacing between input signals. The results of the analysis are compared with the results of a stricter theory and with experimental data. It is found that the proposed method can yield formulas analogous to those derived when dispersion properties are taken into consideration.

1/1

USSR

DOBRZHANSKIY, G. F., KITAYEVA, V. F., KULEVSKIY, L. A., POLIVANOV, YU. N., POLUEKTOV, S. N., PROKHOROV, A. M., SOBOLEV, N. N., Physics Institute imeni P. N. Lebedev of the Academy of Sciences USSR

"Spontaneous Parametric Radiation of the α-HIO_3 Crystal"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, No. 11, 5 Dec 70, pp 505-508

Abstract: The first observation of spontaneous parametric radiation in the biaxial crystal α-HIO_3 belonging to class 222 of the rhombic system is recorded. It is noted that if a crystal having quadratic nonlinearity is exposed to a laser beam, there is a probability of a laser photon with frequency ω_H spontaneously decaying into two photons: a photon of the signal frequency ω_1 and a photon of an additional frequency ω_2 so that

$$\omega_H = \omega_1 + \omega_2.$$

The frequencies of the spontaneous parametric radiation ω_1 and ω_2 are determined by the dispersion characteristics of the crystal, since the process is effective if

DOBRZHANSKIY, G. F., et al, Pis'ma v Zhurnal eksperimental'noy i teoreticheskoy fiziki, No. 11, 5 Dec 70, pp 505-508

the following condition is fulfilled:

$$k_H = k_1 + k_2,$$

where k_H, k_1, and k_2 are the wave vectors of the pumping and of the signal and additional waves. The phenomenon is termed particularly interesting, since it is observed even at pumping powers too small to excite parametric generation, and in the absence of a resonator it can be used to obtain angular, temperature, and electrooptical curves of active media suitable for use in parametric generators of light. The α-HIO_3 crystal was transparent in the region 0.4-1.4 μ and had high nonlinear constants. No optical inhomogeneities were observed in the refractive index under the action of optical radiation of high power density, a feature very important in developing parametric generators of light. A continuous argon laser with wavelengths λ_{H_1} = 4880 Å and λ_{H_2} = 5145 Å with an output power of up to 1 w on each of the wavelengths was used for pumping. Parametric radiation arising in the crystal and polarized along the Y-axis was recorded in the direction of pumping propagation. Typical spectrograms of the spontaneous parametric radiation signal are given which illustrate the dependence of the signal frequency ω_1 on the direction of propagation of pumping in the crystal. It was noted that such crystals can be used as a material to produce both pulsed and continuous parametric generators tuned in the region 0.6-1.3 μ.

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1/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EVALUATION OF THE PROPERTIES OF CAST IRON BY CHEMICAL AND THERMOGRAPHIC ANALYSES -U-

AUTHOR-(04)-LEVI, L.I., KLETSKIN, G.I., SOBOL, N.L., KITAYEV, YA.A.

COUNTRY OF INFO--USSR

SOURCE--LITEINOE PROZIVED. 1970, 2, 7-8

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CAST IRON, ALLOY COMPOSITION, MECHANICAL PROPERTY, THERMOGRAPHIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1733 STEP NO--UR/0128/70/002/000/0007/0008

CIRC ACCESSION NO--AP0118711

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118711

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. INTERVAL OF SOLIDIFICATION CAN BE DETD. RAPIDLY IN 1-5 MIN BY A THERMOGRAPHICAL METHOD AND FOR STABLE CONDITIONS IT CAN BE USED FOR THE EVALUATION OF MECH. PROPERTIES OF CAST IRONS. THE RELIABILITY OF THIS PROCEDURE WAS VERIFIED WITH 3 KINDS OF CAST IRONS A, B, AND C. (C 2.84-3.31, 3.07-3.34, 3.15-3.40; SI 1.21-2.84, 1.31-1.84, 1.80-2.30; AND MN 0.08-1.72, 0.80-1.63, 0.60-1.10 WT. PERCENT, RESP.) REGRESSION EQUATIONS WERE DETD. FOR TENSILE STRENGTH AND HARDNESS IN DEPENDENCE ON THE TEMP. INTERVAL OF CRYSTN. FROM THERMOGRAPHICAL ANALYSES. SIMILAR EQUATIONS WERE DETD. FOR TENSILE STRENGTH AND HARDNESS IN DEPENDENCE ON THE CONCN. OF SI AND C FROM CHEM. ANALYSES. BOTH THERMOGRAPHICAL AND CHEM. METHODS GAVE ANALOGOUS CORRELATION COEFFS. FOR EACH OF THE 3 CAST IRONS, THE BEST COEFF. WAS OBTAINED FOR THE CAST IRON WHICH HAD THE MOST STABLE CHEM. COMPN. OF CHARGING MATERIALS.

UNCLASSIFIED

USSR

UDC 533.92:621.039.61

ALEKSIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V., GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, L. Kh., KONOTOP, P. I., POGOZHEV, D. P., PELETMINSKAYA, V. G., SERGEYEV, Yu. F., SMIRNOV, V. G., SUPRUNENKO, V. A., TOLOK, V. T., TARAN, V. M.

"Development and Production of the Magnetic System of the 'Uragan' Stellarator and a Study of Magnetic Surfaces With Large Sheer"

Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb. (Plasma Physics and Problems of the Controlled Thermonuclear Fusion. Republic Interdepartmental Collection), 1972, No. 3, pp 73-112 (from RZh-Fizika, No 11, Nov 72, Abstract No 11G279)

Translation: This paper concerns the study of the magnetic system of the three-loop "Uragan" stellarator-racetrack. Considerations concerning the selection of optimal parameters of the magnetic system of the stellarator are discussed. The equipment of the "Uragan" is briefly described. An experimental study of the magnetic surfaces made with the aid of low-energy electron beams showed that in the "Uragan" stellarator-racetrack with

USSR

ALEKSIN, V. F., et al, Fiz. plazmy i probl. upravl. termoyader. sinteza. Resp. mezhved. sb., 1972, No. 3, pp 73-112

individually controlled cylinders there are closed magnetic surfaces with high sheer values (~0.09) and angle of rotational conversion (~240°). The experimental data are compared with calculated values obtained on the BESM-6 computer.

2/2

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USSR

UDC 533.92:621.039.61

ALEKSIN, V. F., BIRYUKOV, O. V., VISHNEVETSKIY, V. N., GEORGIYEVSKIY, A. V., GROT, Yu. I., DIKIY, A. G., ZISER, V. Ye., KITAYEVSKIY, I. KH., KONOTOP, P. I., POGOZHEV, D. P., PELETMINSKAYA, V. G., SERGEYEV, Yu. F., SMIRNOV, V. G., SUPRUNENKO, V. A., TOLOK, V. T., and TARAN, V. M.

"Development and Synthesis of the "Uragan" Stellarator and Investigation of Magnetic Surfaces of High Shear"

Kiev, Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza (Plasma Physics and Problems in Controlled Thermonuclear Synthesis -- collection of works) "Naukova dumka," No 3, 1972, pp 73-112

Abstract: After an initial section devoted to a review of the literature on the magnetic surfaces of toroidal stellarators and the principles of stellarators in general, the authors analyze the "Uragan" specifically. In particular, this paper is concerned with the problems involved in choosing the parameters of the magnetic system for the racetrack stellarator to obtain magnetic surfaces with high shear. This last term is defined as the extent of crossing of the magnetic lines of force. The synthesis and adjustment of the magnetic system are also examined, and

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USSR

ALEKSIN, V. F., et al., Fizika Plasmy i Problemy Upravlyayemogo Termoyadernogo Sinteza, "Naukova dumka," No 3, 1972, pp 73-112

the results are given of an investigation into the instrument's magnetic surfaces. Computations worked out on an electronic computer for the design of the magnetic system are described, and differences between the "Uragan" and the "Sirius" stellarators are indicated. A comparative table of the parameters for various types of stellarator is given; it shows that the "Uragan" is one of the more powerful thermonuclear machines, with a high shear value for its substantial 10 koersted magnetic field intensity. This article is liberally illustrated with photographs and line drawings and has a bibliography of 51 titles.

2/2

USSR

UDC 621.039.623

ALEKSIN, V. F., BIRYUKOV, O. V., GEORGIYEVSKIY, A. V., KITAYEVSKIY, L. KH., KOMAR, YE. G., LOGINOV, A. S., MALYSHEV, I. F., MONOSZON, N. A., POPKOVICH, A. V., ROZHDESTVENSKIY, B. V., SAKSAGANSKIY, G. L., SINEL'NIKOV, the late K. D., SOKOLOV, YU. A., SUPRUNENKO, V. A., TOLOK, V. T., CHURAKOV, G. F., and SHABEL'NIKOV, L. A.

"The Experimental Thermonuclear Device 'Uragan'"

Moscow, Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

Abstract: An urgent task of stellarator research is a definitive elucidation of the reasons for anomalous diffusion in a stellarator, as well as the effect of the shear and magnetic well on the confinement of a hot and dense plasma. These questions will be studied on the "Uragan" stellarator. Construction of the "Uragan" stellarator was begun at the suggestion of I. V. KURCHATOV and completed in 1967. The physical substantiation and technical assignment of developing and constructing the complex were developed at the Physicotechnical

USSR

ALEKSIN, V. F., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

Institute of the Academy of Sciences Ukrainian SSR under the direction of K. D. SINEL'NIKOV, who took an active part in the solution of theoretical and technical questions. Organizations taking part in the development of the project and the construction of the complex included the Scientific Research Institute of Electrophysical Equipment imeni D. V. Yefremov, the Elektrosila Electrical Engineering Combine, the Khar'kov Polytechnic Institute imeni V. I. Lenin, the Electromechanical Plant and NIIElektroapparat [Scientific Research Institute of Electrical Equipment] in Khar'kov. A considerable amount of work on the development, manufacture, and adjustment of the systems and components of the "Uragan" was done at the Physicotechnical Institute of the Academy of Sciences Ukrainian SSR.

The principal feature of the "Uragan" is high shear (of the order of 0.02 and 0.1) at a high level of magnetic field strength

USSR

ALEKSIN, V. F., et al., Atomnaya Energiya, Vol 28, No 1, Jan 70, pp 22-28

H_0 (35 and 10 koe respectively). The stellarator is in the shape of a racetrack and uses a high-shear triplex helical field. The vacuum chamber of the trap consists of two semi-tori with an average radius R = 1100 mm and two rectilinear sectors, each 1725 mm long. The internal diameter of the chamber is 200 mm. On the outside of the chamber on the toroidal sectors are two helical windings and longitudinal magnetic field coils, distributed evenly along the device. The maximum strength of the magnetic field is 10 koe under steady-state conditions and 35 koe under pulsed conditions. Three windings are used; viz., longitudinal magnetic field, helical, and transverse magnetic field. All metallic elements are made of low-magnet steel 1Kh18N9T. The toroidal sectors of the vacuum chamber and part of the rectilinear sectors are made of stainless nonmagnetic alloy EP-125. The article gives a detailed description of the windings, cooling system, electric power supply system, vacuum system, and plasma diagnostic and heating system.

3/3

1/2 006 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--AMPERCMETRIC TITRATION OF THALLIUM USING UNITHIOL -U-

AUTHOR-(03)-SONGINA, O.A., OSPANOV, KH.K., KITAYGORODSKAYA, V.YA.

CCUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 482-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AMPERECMETRIC TITRATION, THALLIUM, THIOL, CHEMICAL REDUCTION

CCNTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1126 STEP NO--UR/0075/70/025/003/0482/0484

CIRC ACCESSICN NO--AP0128553

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128553

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE INTERACTION OF TL(III) AND TL(I) WITH UNITHIOL WAS STUDIED BY AMPEROMETRIC TITRN. TL(III) IS REDUCED TO TL(I) WITH UNITHIOL. THE MOLAR RATIO TL(III)-UNITIOL AT THE END POINT IS 1:1. THE EFFECT OF SOLN. ACIDITY AND VARIOUS ADMIXTS. OF TL DETN. WAS EXAMD. ZN, CD, BI, AND CU DO NOT INTERFERE IN THE DETN. OF TL; TE AND SE DO. THE SENSITIVITY OF THE DETN. IS 1 MUG TL PER ML. DISSOLVE 0.5-2.0 G SAMPLE IN 15 ML HCL AND EVAP. TO DRYNESS. TE AND SE VOLATIZE AS CHLORIDES. ADD 10 ML HNO SUB3 AND EVAP. AGAIN, ADD 10 ML 1:1 H SUB2 SO SUB4 AND EVAP. TO SO SUB3 FUMES. DIL. WITH H SUB2 O TO 25 ML AND OXIDIZE TL(I) TO TI(III) BY THE ADDN. OF A FEW DROPS OF KMNO SUB4. FILTER AND DIL. TO 50 ML WITH H SUB2 O. DIL. AN ALIQUOT WITH 2N H SUB2 SO SUB4 TO 25 ML AND TITRATE WITH 0.003MU UNITHIOL POTENTIOMETRICALLY AT PLUS 1.0 V. FACILITY: KAZ. STATE UNIV., ALMA-ATA, USSR.

UNCLASSIFIED

Acc. Nr: AP0055700 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0600

104851f Dependence of the lattice energy of molecular crystals on the unit cell volume calculated by the atom-atom potential method and thermodynamic data. Kitaigorodskii, A. I.; Mirskaya, K. V. (Inst. Elem.-Org. Compounds, Moscow, USSR). *Mol. Cryst. Liquid Cryst.* 1970, 6(3-4), 339-50 (Eng). The lattice energy (U) of naphthalene and anthracene crystals as a function of the unit cell vol. (v) were calcd. by the atom-atom potential method. The exptl. thermal expansion tensor was used in this calcn. The 1st and the 2nd derivs. of the lattice energy with respect to the unit cell vol. have been obtained from the curve $U(v)$. Methods of comparison of these values with exptl. data on the crystal internal energy and its vol. derivs. and also ways of calcg. the vibrational part of the crystal internal energy are discussed. Vibrational corrections to the lattice energy and its vol. derivs. are small. RCMG

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REEL/FRAME 19841009

1/2 024 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEPENDENCE OF THE LATTICE ENERGY OF MOLECULAR CRYSTALS ON THE UNIT CELL VOLUME CALCULATED BY THE ATOM ATOM POTENTIAL METHOD AND

AUTHOR-(02)-KITAIGORODSKY, A.I., MIRSKAYA, K.V.

COUNTRY OF INFO--USSR

SOURCE--MOLECULAR CRYST., LIQUID CRYST. (GB), VOL. 6, NO. 3-4, P. 339-50, FEB 1970

DATE PUBLISHED----FEB70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--MOLECULAR CRYSTAL, CRYSTAL LATTICE ENERGY, NAPPTHALENE, ANTHRACENE, THERMAL EXPANSION, THERMODYNAMIC ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/0679 STEP NO--UK/0000/70/006/03-/0339/0350

CIRC ACCESSION NO--AP0111872

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 024

CIRC ACCESSION NO--AP0111872

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LATTICE ENERGY (U) OF NAPTHALENE AND ANTHRACENE CRYSTAL AS A FUNCTION OF THE UNIT CELL VOLUME (NU) HAS BEEN CALCULATED BY THE ATOM ATOM POTENTIAL METHODS. THE EXPERIMENTAL THERMAL EXPANSION TENSOR HAS BEEN USED IN THIS CALCULATION. THE FIRST AND THE SECOND DERIVATIVES OF THE LATTICE ENERGY WITH RESPECT TO THE UNIT CELL VOLUME HAVE BEEN OBTAINED FROM THE CURVE U(NU). METHODS OF COMPARISON OF THESE VALUES WITH EXPERIMENTAL DATA ON THE CRYSTAL INTERNAL ENERGY AND ITS VOLUME DERIVATIVES AND ALSO WAYS OF CALCULATING THE VIBRATIONAL PART OF THE CRYSTAL INTERNAL ENERGY HAVE BEEN DISCUSSED. IT HAS BEEN SHOWN THAT VIBRATIONAL CORRECTIONS TO THE LATTICE ENERGY AND ITS VOLUME DERIVATIVES ARE SMALL. FACILITY: INST. ELEMENTO ORGANIC COMPOUNDS. ACAD. SCI. USSR., MOSCOW.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--PACKING OF MACROMOLECULES IN POLYMERS -U-

AUTHOR-(03)-SLONIMSKIY, G.L., ASKADSKIY, A.A., KITAYGORODSKIY, A.I.

COUNTRY OF INFO--USSR

SOURCE--VYSOLOMOL. SOEDIN., SER. A 1970, 12(3), 494-512

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MACROMOLECULE, POLYMER, SPECIFIC DENSITY, ISOMER, CALCULATION, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1189 STEP NO--UR/0459/70/012/003/0494/0512

CIRC ACCESSION NO--AP0116654
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0116654

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PACKING FACTOR (K) OF 70 VARIOUS ALIPHATIC AND AROMATIC POLYMERS WAS CALCD. (K EQUALS 0.664-0.697). THE PACKING D. OF VARIOUS AMORPHOUS AND PARTIALLY CRYST. POLYMERS WAS QUITE SIMILAR IN THE 1ST APPROXN. SUBSTITUTION OF POLAR GROUPS FOR NONPOLAR ONES LED TO INCREASED D., PRESUMABLY DUE TO INCREASED MASS RATHER THAN VOL. CONTRACTION. THE D. OF THE POLYMERS WAS CALCD. FROM CHEM. STRUCTURE DATA OF THE REPEATING UNIT, WHICH OFFERED A MEANS FOR PREDICTING THE PROPERTIES OF A POLYMER PRIOR TO SYNTHESIS. ISOMERIC POLYMERS WERE SUBDIVIDED INTO 2 GROUPS, VIZ., ISOMERS HAVING IDENTICAL INTRINSIC VOL, AND ISOMERS HAVING DIFFERENT VOLS. THE LATTER POLYMER HAD MARKEDLY DIFFERENT PROPERTIES. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

1/4 020 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THEORY OF THE ACTIVE LAYER OF THE OCEAN -U-

AUTHOR-(02)-KITAYGORODSKIY, S.A., MIROPOLSKIY, YU.Z.

COUNTRY OF INFO--USSR

SOURCE--INSTITUTE OF OCEANOLOGY; MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI, NO 2, 1970, PP 178-179

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--OCEAN SURFACE TEMPERATURE, OCEAN, HEATING, OCEAN DEPTH, THERMOCLINE, SURFACE BOUNDARY LAYER, WIND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1714 STEP NO--UR/0362/70/006/002/0178/0179

CIRC ACCESSION NO--AP0123525

UNCLASSIFIED